POLICY RESEARCH WORKING PAPER 2436

Safety Nets and Safety Ropes

Who Benefited from Two Indonesian Crisis Programs—the "Poor" or the "Shocked?"

A study of two programs compares the "safety net" (which guarantees against a fall past an *absolute level*) with the "safety rope" (which guarantees against a fall of more than a given *distance*).

Sudarno Sumarto
Asep Suryahadi
Lant Pritchett

The World Bank
East Asia and Pacific Region
Environment and Social Development Sector Unit
September 2000

POLICY RESEARCH WORKING PAPER 2436

Summary findings

Imagine several mountain climbers, scaling a cliff face, who want protection from falling. One way to protect them would be to place a net at the bottom of the cliff to catch any climber just before he hits the ground. Another would be to provide a rope and a set of movable devices that can be attached to the cliff; as the climbers scale the cliff, they attach the rope at higher and higher levels so that if a climber falls, he falls only by the length of the rope.

In this paper, the "safety net" guarantees against a fall past an absolute level; the "safety rope" guarantees against a fall of more than a given distance. The safety net is concerned with an increase in *poverty*; the safety rope *mitigates risk* through social insurance or social protection.

Calculations of the benefit incidence and targeting effectiveness of safety net programs typically examine only the relationship between a household's *current* expenditures and program participation. But in programs that respond to an economic shock or intend to mitigate household risk, it is not only the current *level* of expenditures that matters but also *changes* in expenditures.

Safety net programs may intend to benefit only the currently poor; programs to mitigate shocks ("safety rope" programs) may intend to provide transfers to those whose incomes have *fallen*, even if they have not fallen below an absolute poverty threshold.

Sumarto, Suryahadi, and Pritchett examine the targeting performance of two programs created to respond to the social impacts of Indonesia's crisis.

They find strong evidence that one program, subsidized sales of rice targeted to the permanently poor, was only weakly related to the shock in consumption spending.

A job creation program was much more responsive to *changes* in spending.

A household that started in the third quintile in expenditures in 1997 and fell to the lowest quintile between 1997 and 1998 was four times as likely to have participated in the job creation program as a household starting in the third quintile in 1997 but experiencing a positive shock. But the household experiencing a negative shock was only 50 percent more likely to have received subsidized rice than a household experiencing a positive shock.

This paper—a product of the Environment and Social Development Sector Unit, East Asia and Pacific Region—is part of a larger effort in the region to improve the efficacy of response to the social impacts of the Indonesian crisis. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address psader@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. Lant Pritchett may be contacted at lant_pritchett@harvard.edu. September 2000. (25 pages)

Safety Nets and Safety Ropes:

Who Benefited from Two Indonesian Crisis Programs—
The "Poor" or the "Shocked?"

Sudarno Sumarto
(SMERU)

Asep Suryahadi
(SMERU)

Lant Pritchett
(World Bank)

Safety Nets and Safety Ropes:

Who Benefited from Two Indonesian Crisis Programs— The "Poor" or the "Shocked?"[1]

I) Introduction

Imagine a number of mountain climbers scaling a sheer cliff face who, understandably, want protection from falling. One method would be to employ a net placed at the bottom of the cliff to catch any climber just before they hit the ground. Another method is to provide a rope and a set of movable devices that can be attached to the cliff so that as the climber scales the cliff they attach the rope at higher and higher levels, and at any given time if a climber falls they fall only by the length of the rope. The "safety net" is a guarantee against a fall past an *absolute level*, while the "safety rope" is a guarantee against a fall of more than a given *distance*. For climbers very near the bottom the safety net provides reassurance, but for those who have made substantial progress, it is probably small comfort that if they slip they will lose all of their progress only to be caught at the very bottom.

While the metaphor of the "social safety net" has become common, it actually confuses two distinct issues. One is a concern for an increase in *poverty*, which as typically measured is the extent to which people are currently below a given level of standard of living. The other is a concern for the *mitigation of risk* through "social insurance" or "social protection," which is concerned with reducing the vulnerability people face from the wide variety of shocks households face, whether or not these shocks push households below some absolute level. This confusion in "social safety

[1] We would like to thank BPS and UNICEF for access to the 100 villages data.

nets" also extends to the economics and political economy of "safety net programs." The reasons why a government, either as a normative or positive matter, might want to implement these programs are completely different.[2]

In Indonesia, as the result of the "krismon" (*krisis moneter* or monetary crisis[3]), there were several new programs launched, widely known as "JPS" (*Jaring Pengaman Sosial* or social safety net). The programs were intended to help protect the traditionally poor and newly poor suffering from the crisis in four areas: (a) ensuring the availability of food at affordable prices for the poor, (b) supplementing purchasing power among poor households (HHs) through employment creation, and (c) preserving access of the poor to critical social services such as health and education, and (d) sustain local economic activity through regional block grant programs and extension of credit.

This note is not a comprehensive evaluation of the entire range of programs or even a comprehensive picture of the implementation of the two programs we focus on. In this paper, we only examine the dynamic targeting of two of these "JPS programs," i.e. the "OPK" (*Operasi Pasar Khusus* or special market operation) — a program of selling subsidized rice to targeted households — and the "employment creation program" (which was actually a collection of many different programs operated by different ministries).

The reminder of this note is organized as follows. Section two discusses the programs and their method of targeting. Section three briefly explains the source of

[2] Economists would recommend poverty programs to a hypothetical benign social welfare maximizer if the social welfare function was built up from individual (household) utility functions with declining marginal utility in which case a (costless) transfer from rich to poor is not a Pareto improvement by does raise social welfare. There is also an argument for poverty programs from an externality in altruism. In contrast the normative case for government involvement in mitigation of risk is based on the argument that, if moral hazard and adverse selection are sufficiently large then welfare improving markets for insurance against these risks will not exist (and they will be "too small" in any case). This

the data, i.e. the '100 Villages Survey'. Section four discusses method used in evaluating the targeting effectiveness and the main findings, and finally section five provides conclusions.

II) The programs and their method of targeting

The two key social safety net programs analyzed in this study use different targeting methods. The households eligible for the OPK (cheap rice) program was based on the family planning agency (BKKBN) list of households by "welfare" status. In this classification, HHs are grouped into four socio-economic status: 'pre-prosperous' ("keluarga pra-sejahtera" or KPS), 'prosperous level I, II or III' ("keluarga sejahtera " or KS I, KS II, and KS III) based on a range of variables (food consumption, type of floor, type of health care services, clothing, and religious practices) as assessed by local BKKBN *Kader* (family planning cadres). The KS I to KS III categories are often lumped together as KS (or 'prosperous') category. In past years, eligible recipients for some JPS programs are only KPS card holders, but for OPK eligibility was extended to include KS I HHs as well. At the present time under the OPK program, each eligible HH is allowed to purchase 20 kilograms of rice per month at a highly subsidized price of Rp. 1,000/kg, but during the period covered by the data (Aug-Dec. 1998) the amount at this price was only 10 kg per HH. The market price for medium quality rice in October to November 1998 period was around Rp. 2,500/kg.[4] The magnitude of the subsidy was therefore roughly Rp. 15,000/HH/month (compared to the total HH expenditures at the 20th percentile of Rp.

---

is potentially the case in a wide variety of insurance markets—but particularly affect the market for insurance of incomes.

[3] Actually it was a combination simultaneous financial, economic, natural and political crises.

[4] Rahayu, Sri Kusumastuti *et al* (1998), *Results of a SMERU Rapid Field Appraisal Mission: Implementation of Special Market Operation (OPK) Program in Five Provinces*, SMERU Special Report, December, Social Monitoring & Early Response Unit, Jakarta.

232,000/month). The program began in August 1998 and was brought up to roughly full scale in terms of HH coverage by the time of the Dec 1998 round of the survey.

The four major criticisms of using BKKBN list for targeting are that (a) it does not capture transitory shocks to income as it is based on relatively fixed assets (like having a floor not made of earth, owning changes of clothing); (b) it includes non-economic criteria (e.g. family able to meet religious obligations); c) the list is compiled by relatively low trained workers at the village level so consistency across regions is not assured; and d) the list is susceptive to changes by local government officials.[5]

Of course in practice the targeting mechanism was not always implemented as specified in the rules. BULOG (the National Logistic Agency) made the amounts of rice available at the Dolog (Logistic Depot) and Sub-Dolog offices based on the eligibility lists, but the actual distribution of the rice to HHs within the localities was carried out by local officials. Numerous field visits report that in some areas local decision-makers felt pressure from communities to change the distribution of rice from the designated "eligible" HHs to other HHs which were deemed equally deserving or to the entire community. A commonly heard argument was that since all the community was expected to contribute to community endeavors (e.g. gotong royong or "self-help") that all should benefit equally from the "windfall" assistance from the central government. In many cases the rice was divided up equally among all households, so that KPS and KS I HHs received less rice and some was also received by households with higher living standards.[6] This diversion from one set of HHs to

[5] A criticism that is particularly important in Jakarta (and some other major cities) is that the list may only include those with a valid identification card (KTP) for that location. Since these KTPs are difficult to obtain a large fraction of the poor would be excluded by this creteria.
[6] See Suryahadi *et al* (1999).

others is in addition to less frequent reports of the rice being diverted from HH distribution altogether and sold on the local market.

The other JPS "program" we examine was not a single program but a large set of activities under the name of *padat karya* (which means, as an adjective, "labor intensive"). These were created as a response to the threat of burgeoning unemployment because of economic contraction which had forced many firms to either lay off part of their workers or shutdown completely. In accordance with the urban nature of the crisis, the initial geographical targets for the first round of "crash" programs were directed to urban areas plus some rural areas which experienced harvest failures. In FY 1998/99 there was a proliferation of programs and there were more than a dozen different programs which fall into this "employment creation" category, which can be classified into four types. First, some programs were a redesigning of on-going investment and infrastructure projects into more labor intensive type project. Second, other programs gave modes of contracting and block grants to local communities (such as the *Kecamatan* Development, Village Infrastructure, and PDM-DKE Programs). These funds were directed to poorer areas, and had 'menus' for the utilization of the funds that included the possibility of public works with a labor creating effect. A third set were special labor intensive work (forestry, rural-urban, retraining of laid off workers). A fourth type of program were "food for work" programs usually launched by international donors and NGOs in the drought stricken areas.

Unlike the OPK, the collection of *padat karya* programs were quite diverse and although specific programs were targeted to areas (e.g. drought) the lack of coordination meant there was little or no systematic geographic targeting of the set of programs overall. Within programs there were a variety of criteria used but typically

the beneficiaries were not chosen according to fixed administration criteria. To the extent there was targeting, it was primarily through self-selection. Only those who were willing to work should have been able to receive the benefit. This self-selection mechanism has the advantage over administrative criteria of allowing individuals to choose to participate or not and creates the possibility of being more flexible to unobserved HH shocks.

In practice, however, there were several problems. First, the programs were not rigorously held to a minimum wage, and in many cases the programs would raise wages (or would shorten hours for the same wage) to attract workers. In some regions, the wage rate was set at higher rate than the prevailing local wage rate, and thus inducing the already working people to switch jobs. Second, at least in some anecdotal evidence, workers were not actually held to working. Field investigations uncovered evidence of "ghost workers," who were present on the records as being paid for the day but not present on the site. Third, reports from the field also indicated other shortcomings in selection of beneficiaries, such as favoritism in giving jobs to the close family and friends of local officials.

So, in design (as of December 1998) the OPK eligibility was based on an administrative criteria of the BKKBN list, which was (more or less) fixed by the *kaders* survey of HHs in January 1998, while the participation in any of the *padat karya* programs was based on self-selection. In practice, both programs had a variety of deviations from this design and the actual targeting with respect to households expenditures and poverty status. It is a matter for empirical inquiry using the HH data.

III) Data: The 100 Village Survey

Data. The 100 Village Survey ("Survei Seratus Desa" or SSD) was sponsored by UNICEF and carried out by BPS. The SSD collected data from 12,000 HHs, covering 100 'villages' (*desa*), located in 10 districts (*kabupaten*), spread across 8 provinces. The SSD surveyed 120 HHs in each of the 100 villages in each round of the survey.[7] This study utilizes the data from three rounds: May 1997, August 1998, and December 1998. The SSD sample, while quite large, was not designed to be statistically representative of the country and are geographically quite concentrated, located in only 10 of the country's over 300 districts.

The survey areas were chosen in 1994, before the crisis, based on a purposive sampling approach to capture various types of villages that were 'representative' of various parts of the rural economy. Since the areas were chosen before the crisis, there is no reason to suspect the sampling was influenced by the crisis. On the other hand, this survey was meant to focus on rural and relatively poor areas, so we know in advance it is not representative of the entire country in *levels*.[8] How representative it is of the *changes* due to the recent shock is impossible to know.[9] Until this data can be matched with analysis of the new national data on JPS from SUSENAS 1999, it is impossible to say how 'representative' the impact of the crisis in the areas might be. However, there is little reason to believe these two JPS programs differed substantially or systematically in these areas from other parts of the country.

The December 1998 round of SSD has a module on respondent's awareness and participation in various JPS programs. The households were asked if they had "participated" in these programs in the period since August 31st 1998, so the recall

[7] See Suryahadi and Sumarto (1999) for more details.
[8] The HHs sampled are not even representative in *levels* of the population within the 10 districts of the sample. In this sample there are 49 percent 'pre-prosperous' HHs, while the same districts have only 26 percent 'pre-prosperous' HHs.
[9] Although evidence presented in an earlier paper suggests reasonably close correspondence of estimates of changes in national poverty rates. See Suryahadi and Sumarto (1999).

period is roughly three months. The exact questions of this module in Bahasa Indonesia together with their English translation are presented in the annex A. There are two unfortunate aspects of the data. First, the questions do not allow precise identification of the specific programs as it does not allow us to determine in which of the many *padat karya* programs a HH may have participated. Also, the SSD questionnaire inquires only about the receipt of *Sembako* ("basic necessities") and does not identify particularly the OPK program as there are other sources such as private charities (e.g. religious activities, NGOs). While OPK accounts for the vast majority of Sembako and hence we believe the data reflects primarily the OPK program, we can not be more precise. Second, there is no indication of the extent of participation or magnitude of benefits, so for instance there is no indication of the number of days of *padat karya* labor nor of the amount of rice received (which varied widely depending on the distribution rule in the local community).

Data on JPS participation from the December 1998 round were combined with expenditure data from the May 1997 and August 1998 rounds, so that it can be evaluated whether JPS participation in the period of September to December 1998 is correlated or not with levels and changes of expenditures in May 1997 and August 1998. Although the number of samples in each round is fixed at 12,000 HHs, due to sample replacements there are only 6,200 HHs that can be identified as the same HHs interviewed in all the three rounds. The process of HH matching itself was quite problematic due to the lack of unique identification code across rounds. Hence, the matching (within each village) had to rely on the names of HH heads, controlled by demographic variables.

To make the level of expenditures in August 1998 comparable with May 1997, a deflator was recalculated from the consumer price index (CPI) data between the two

periods. The CPI has a food share of around 40 percent, which is underestimating the importance of food for poorer HHs. Based on the consumption data in the May 1997 round, the deflator used in this study has a food share of 68 percent.[10]

IV) Methods and Results

Since our approach extends static benefit incidence with information on changes, we start with the basic procedure of calculating quintiles of expenditures in May 1997 and August 1998 and quintiles of the *change* in expenditures. The changes are calculated such that a negative number implies a fall in incomes so the smallest quintile are those whose expenditures fell the most between the two surveys. We then calculate the proportion of households who report "participating" in either the *sembako* or the *padat karya* in December 1998. The existence of the panel data allows us to track participation in the JPS programs in two ways. The first uses the "transition matrix" and examines participation not only according to which quintile the households expenditures were in 1998, but also on how the HH arrived in that expenditure quintile, that is, where the HH was in 1997. The second takes a HHs expenditures in 1997 and examines how the shock experienced by the HH determined the likelihood of program participation.

A) Targeting and the Transition Matrix

Appendix Table A.1 shows the results of the transition matrix approach for *sembako*. The top row shows the result of the static benefit incidence calculation. Of those in the bottom quintile in 1998 (QI-98) 52.7 percent received *sembako*, while this was 42.3 percent for the middle (third) quintile, and only 20.7 for the richest quintile.

[10] More discussion on the appropriate deflators for Indonesia during the crisis can be found in Suryahadi and Sumarto (1999).

This suggests substantial, but far from perfect targeting. The first column shows how well the program was targeted if we judged it solely by the HHs expenditures in May 1997. The program is actually slightly more sharply targeted on May 1997 expenditures than on August 1998 expenditures, with participation falling from 59.8 (QI-97) to 20.6 (QV-97) percent.

But the classification of households by either quintiles in 1997 or quintiles in 1998 does not utilize the panel nature of the data that allows us to track the households over time. The "transition matrix" shows which households moved quintiles, for example, were in QI in 1997 and then QIII in 1998 (and hence rose in relative ranking) or which HHs fell in ranking from QIII in 1997 to QI in 1998. The numbers of HHs in each cell presented in table B.1 in appendix B.

The cells of the table in A.1 record the participation in the programs by each of the 25 possible combinations of quintiles. So of the 335 households who were in QIII in each period, 44.5 percent received *sembako*; of the 152 HHs who were in QIII in 1997 but fell into Q I in 1998, only 42.1 percent received *sembako*; while of the 191 HHs from QIII in 1997 who rose into the top quintile (QV) in 1998, only 24.6 percent received *sembako*.

Since the transition matrix contains a wealth of information, in order to summarize the data and to make the results comparable across the two programs, we have summarized that information in three ways.

- The second number in each cell under the participation rate in **bold** text, is the ratio of participation of that cell of the transition matrix relative to those who were in the poorest quintile in both periods. So, proceeding down the diagonal of those were in the same quintile in each period, QII97-QII98 participation was 90 percent that of QI97-QI98, while QIII-97-QIII98 was 76

percent, and down to QV97-QV98 where participation was only 27 percent that of the QI87-QI98 households.

- The third number in each cell (in *italics*) is the ratio of participation in that cell to the total participation of the same quintile in 1998. Average participation of QII98 was 47.9 percent, but of those in the second quintile in 1998 who came from the first quintile in 1997 (QI97-QII98) 63.1 percent received *sembako*, so the ratio is 1.32, while of those with the same (measured) expenditures in 1998 in the second quintile, but whom were in the fifth quintile in 1997 (QV97-QII98) only 27 percent received *sembako*, so the ratio with QII98 average is .56.

- The last entry in each cell is similar, as it is the ratio of the cell participation to the average for that quintile in 1997 expenditures. So HHs in QIII97 had average participation of 40.1 ranging from 46.9 (ratio = 1.17) for QIII97-QII98 to only .61 (= 24.6/40.1) for QIII97-QV98.

The same method is applied to the padat karya programs and the results are presented in Appendix Table A.2.

B) Targeting and Household expenditure "shock"

Even clearer than the transition matrices are the classification of households by their "pre-crisis" level of expenditure and the "shock." Tables A.3 and A.4 repeat the analysis in tables A.1 and A.2 respectively with the but with quintiles of expenditures in 1997 as one axis and the other axis is by quintiles of change in (natural log) expenditures between 1997 and 1998.[11]

[11] The numbers of HHs in each cell are presented in table B2 in annex B.

Comparing tables A.3 and A.4 show the real differences in the program as regards the "safety net" versus "safety rope" aspects. Take the households who, before the crisis, were in the middle of the expenditure distribution, QIII97, and then examine how the shock to those HH's expenditures affected their participation in the two JPS programs. The average receipt for *sembako* for those HHs in QIII97 was 40.1 percent. Those with the worst shock were only slightly more likely to receive *sembako*, with participation rate of 42.4 (ratio of 1.06). Interestingly, those beginning in QIII-97 with a slightly less severe shock (QII-Shock and QIII-Shock) actually were actually *more* likely than those with the worst shock to receive *sembako*, with participation ratios relative to the average for the quintile of 1.20 and 1.11 respectively. Even those with the best shock (whose measured expenditures actually increased) were only modestly less likely to receive *sembako* than were the worst affected households, so that the ratio of worst to least shock participation was only 1.58, i.e. the worst affected were only 58 percent more likely to receive *sembako* than the least affected group.

In contrast, in the *padat karya*, those who began in the middle group in 1997 (QIII-97) were less likely on average to participate than were the poorest QI-97, as 23.1 percent of QI-97 participated versus only 40 percent of that (9.4 percent) of QIII-97. This is sharper targeting based on 1997 than OPK, where the similar ratio is .7. What is ever more striking is the extent to which a shock to expenditures affects the likelihood of *padat karya* participation, as those who began in the middle but suffered the worst quintile of shock (QIII97-QIShock) had a participation rate of 18.9 percent (almost as high as the QI-97 average of 23.1). In contrast, those from the middle who experienced the best change in expenditures (QIII-97, QV-Shock) had a participation

rate of only 5.3 percent. This implies that the worst hit were over 300 percent more likely to participate in *padat karya* than the least hit.

These comparative results are summarized in table 1 and figures 1 and 2. Table 1 summarize the information from the appendix tables to show the two programs side by side with all the participation rates relative to the "worst" cell, QI-97, QI-98 in the upper half of table 1 or QI-97, QI-Shock in the lower half of the table. This shows the "targeting slopes" in both dimensions — either expenditures 1997 and expenditures 1998 or expenditures 1997 and the change in expenditures.

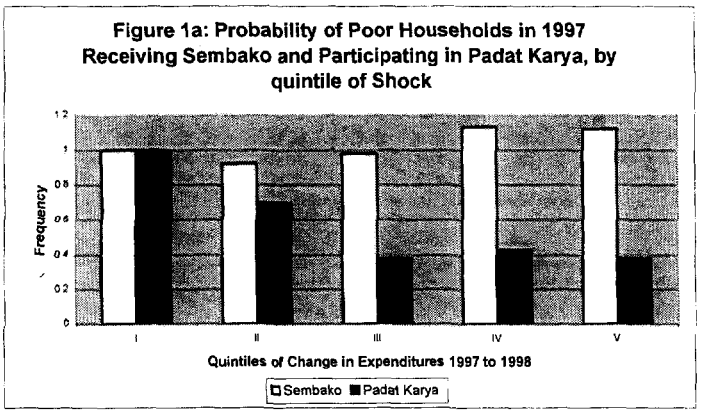
Table 1: Summary comparison of targeting between *sembako* and *padat karya*

			Quintiles by level of expenditures in 1998			Ratio of QV to QI
			I (Poorest)	III	V (Richest)	
Quintiles by expenditures in 1997	I (Poorest)	Sembako	1.00	1.17	0.69	0.69
		Padat Karya	1.00	0.47	0.42	0.42
	III	Sembako	0.72	0.76	0.42	0.58
		Padat Karya	0.66	0.27	0.12	0.18
	V (Richest)	Sembako	0.63	0.41	0.27	0.43
		Padat Karya	1.12	0.24	0.06	0.05
			Quintiles by "shock": change in expenditures 1997 to 1998			Ratio of QV to QI
			I (Worst Affected)	III	V (Positive Shock)	
Quintiles by expenditures in 1997	I (Poorest)	Sembako	1.00	0.98	1.12	1.12
		Padat Karya	1.00	0.38	0.38	0.38
	III	Sembako	0.75	0.79	0.48	0.64
		Padat Karya	0.40	0.16	0.11	0.28
	V (Richest)	Sembako	0.40	0.30	0.30	0.75
		Padat Karya	0.19	0.07	0.04	0.21

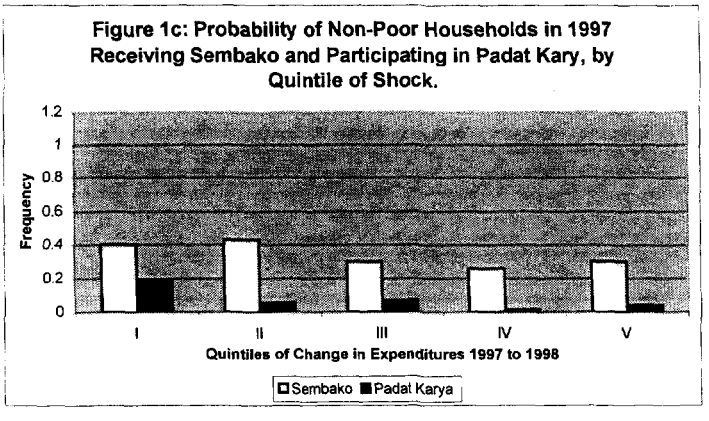
Source: Derived from appendix tables A.1-A.4.

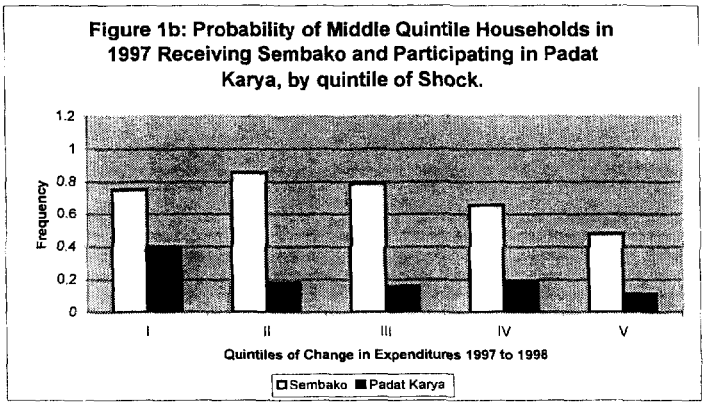
Padat karya is far and away more targeted "steeper" with respect to the shock for all groups of initial income. The final column of table shows the ratio of the program participation rate for QV-Shock to QI-Shock for each of the groups. So while for the poor (QI-97) the ratio is 1.12 for *sembako* (those least affected actually got more), for *padat karya* the ratio is .38. For the richest group (QV-97) those that has the best shock were almost certain not to participate in *padat karya* with a rate of only 1.7 percent, only 4 percent of that of the worst (QI-97, QI-Shock) cell, while for the *sembako* the "best" group the rate is still 30 percent of that for the worst group.

We summarize this tabublar information graphically in two ways. The panels of Figure 1 show the comparison across different magnitudes of shock for different quintiles of initial expenditures in 1997. Figure 1a shows the likelihood of receiving *sembako* or participating in *padat karya* for those who were poor in 1997 (QI-97) relative to those with the worst shock (QI-Shock). (The participation rate is normalized to 1 for both programs so that the graph compares just targeting (relative partcipation rates) and not average program participation.) For this quintile the difference in the two programs is striking, as the least affected group (whose expenditures *rose)* was more likely to receive *sembako* than the least affected group while participation in *padat karya* fell uniformly.



Figures 1b and 1c show the same comparison for those who were in the middle (QIII-97) and top (QV-97) groups. Since participation rates are still relative to the worst group (QI-97, QI-Shock) these graphs show two features. First, participation is higher for *sembako* for every group, suggesting that this is less sharply targeted by initial income. Second, for both expenditure groups the drop is sharper by





the extent of the shock—so *padat karya* is also much more targeted by the extent of the shock households experienced than is *sembako*.

Figures 2a and 2b show the same information in a three dimensional bar chart for each program. If this graph looks confusing—skip it. If it looks cool, here is how to read it. The slope coming towards the reader is the degree of targeting with respect to 1997 levels. The slope across the graph (left to right) is the targeting with respect to shock. The overall targeting is the slope from back left corner (which cell (QI-97, QI-shock) is normalized to 1 in both graphs) for front right corner. It is obvious that considered in both dimensions the *padat karya* were much more targeted than *sembako*.

C) Targeting, Insurance, and Budget Allocations

From the government point of view, it is important to assess the efficiency of a program by evaluating which groups actually receive most of the budget. The first step in this is to estimate how much of a given budget which is received by beneficiaries is received by various groups. However, we have no information on how large the benefits were from either program as we neither know the amount of rice received nor the number of days worked. Therefore in this sub-section we estimate an elaborate hypothetical. We ask *if* a total amount of benefits were to be distributed according the targeting pattern of *sembako* versus according to the targeting pattern of *padat karya*, what is the expected amount that would be received by each group and how much of the budget would go to individuals in the various groups by initial income and shock.

Suppose there were a budget to be costlessly distributed to the 6,200 individuals in the sample that was adequate to provide each HH 10,000 rupiah per month[12]. We compare three possible allocations. First, a uniform allocation so that every HH receives exactly the same amount irrespective of initial income and shock. Second, distributed according to the targeting pattern of *sembako,* assuming every HH who "participates" receives exactly the same amount. Third, distributed according to the targeting pattern of *padat karya* again with the assumption of equal distribution.

We need to stress that all of these calculations are hypothetical because in fact the costs of delivering a dollar's worth of benefits via a *padat karya* is much much higher than through a simple in-kind income transfer program like OPK but it also delivers other, non-transfer, benefits. So there are at least three elements to a choice between an *actual* employment creation scheme and an *actual* subsidized rice scheme. First, there are other costs to labor creation so only a fraction of the benefits accrue to labor. Second, the gross benefit to workers is not the net benefit, which must account for the foregone wage. Third, the *padat karya* may actually create useful investments that deliver benefits to poor and non-poor. Our concern here is just on the targeting pattern.

Table 2 shows the expected amount that would be received by a person in each group. This expected amount is the amount to be received per household, conditional on household participation (which is the total budget for the program divided by the total number of participants) times the number of recipients in each cell divided by the total number in that cell (which is the likelihood of participation). For the uniform transfer, this is easy: the total is 62 million, there are 6200 households, so the per recipient amount is 10,000 and all households in each cell participate so the expected

[12] This more or less arbitrary figure is chosen because if the total development budget for safety nets in FY 99/2000 of 5.6 trillion rupiah were distributed to each of the country's 45 million households

amount is 10,000. For the *sembako* targeting scheme (note this is not the actual *sembako* scheme but a hypothetical) the number of participants is 2377 of 6200 so the transfer per recipient would be 62 million* (6200/2377)=Rp. 26081, which is true for all participants. Then take the first cell, 248 of the 441 people in this cell participated so the expected value is the amount time the chance of participating, which is 26081*(248/441)=Rp. 14,658. Since for *padat karya* the overall participation is lower, the amount per recipient is higher at Rp 69,815 while the participation in the first cell is 208 of 441 so the expected value is Rp. 32,928. (An equivalent procedure for comparing the programs would have been to scale up *padat karya* participation to the *sembako* level on average, producing equivalent expected values across this table).

Insurance is a contingent contract that pays off different amounts depending the realization of some outcome. So if my house does not burn down the payout on fire insurance is zero while if my house does burn down my payout is the value of the house. How do this programs stack up as a "safety rope" or insurance against a negative shock? This table shows the trade-offs from a potential recipients point of view. While the likelihood of receiving *sembako* is higher for every group, this also means that the total amount must be spread over a larger group so the more even the distribution across the population the less the amount available per person. In contrast, *padat karya* pays out more in bad states than good states.

Suppose I were in some Rawlsian condition of ignorance and I did not know which state (e.g. my wealth or shock) I would be in, which would I prefer? If I am completely risk average, I don't care as the expected value for all programs is 10,000 for each. But if I am sufficiently risk averse I would prefer the *padat karya* pattern to the *sembako* pattern to the uniform transfer because if I have the worst outcome I

---

equally this would provide 10,370 rupiah per HH per month.

receive 22,000 under that pattern while only 12,000 under the *sembako* pattern and only 10,000. With the second to worse shock I receive more, while with all other shocks I receive less from that program.

Now suppose that I do know which quintile I am in but do not know what my shock will be like, then which program do I prefer? Now there are two effects, a level of expenditures effect and a risk effect. If I am poor even with modest risk aversion I prefer *padat karya* pattern because I get more on average and I get more when I have a negative shock so the program has superior transfer and insurance functions. If I am in quintile IV then (in the absence of altruism) I prefer the uniform over the *sembako* over the *padat karya* pattern because I receive more in every state in uniform than *sembako*, *sembako* than *padat karya*. The middle group (Q-III) is interesting, as the pay-outs in the worst shock are higher but the payouts on average are much lower (6,824 versus 10,571). If I am very risk averse (and hence have a very large desire to reallocate resources from good to bad states) I might prefer *padat karya* even though the payouts in the good states are so low.

Table 2: Expected value received by households in various groups, according to quintile of expenditures in 1997 and shock for a hypothetical program following either uniform distribution of the *sembako* or *padat karya* pattern of targeting.

			Quintiles of shock (change in natural log expenditures)				
		Average across shock	I	II	II	IV	V
Average across all Quintiles of 1997							
	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
	Sembako	10,000	11,977	11,867	10,686	8,713	6,757
	Padat Karya	10,000	22,399	12,194	6,204	5,624	3,579
Quintile I of 1997 Expenditures							
I	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
I	Sembako	14,708	14,658	13,537	14,293	16,588	16,432
I	Padat Karya	22,713	33,023	23,109	12,567	14,103	12,497
Quintile II							
II	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
II	Sembako	12,506	13,406	13,563	13,041	11,372	8,946
II	Padat Karya	14,752	29,532	15,010	6,214	9,425	9,146
Quintile III							
III	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
III	Sembako	10,571	11,059	12,545	11,606	9,624	6,964
III	Padat Karya	6,824	13,195	5,934	5,236	6,283	3,700
Quintile IV							
IV	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
IV	Sembako	7,580	8,111	9,729	8,529	6,690	5,973
IV	Padat Karya	3,974	6,493	6,004	4,747	2,932	1,606
Quintile V							
V	Uniform	10,000	10,000	10,000	10,000	10,000	10,000
V	Sembako	4,635	5,868	6,312	4,382	3,782	4,408
V	Padat Karya	1,737	6,283	1,745	2,304	461	1,187

Notes: Author's calculations based on appendix table A.1-A.4 and B.1

From a policy point of view, if one is imagining normative recommendations to a benign social planner who is maximizing a social welfare function with "inequality aversion" then the *padat karya* pattern of benefits would be preferred because if both reaches the poor more effectively and has the added benefit of reaching those with a bad shock to income. Table 3 examines the proportion of the budget that goes to the various groups, which is a product of the targeting and the distribution across groups. In the *padat karya* pattern 45 percent of the budget goes to those with the worst shock and (conincidentally) 45 percent of the budget goes to

those in the bottom quintile. In *sembako* pattern of targeting, only 24 percent goes to the worst shocked, while 30 percent goes to those in the bottom quintile.

Table 3: Proportion of budget delivered to beneficiaries under various targeting patterns.

			Quintiles by shock (change in per capita expenditures)				
		Average across all Shocks	I	II	II	IV	V
	Uniform		20.0	20.0	20.0	20.0	20.0
	Sembako		24.0	23.7	21.4	17.4	13.5
	Padat Karya		44.8	24.4	12.4	11.2	7.2
Quintile I 1997							
I	Uniform	20.0	7.1	5.1	3.5	2.5	1.8
I	Sembako	29.4	10.4	6.9	5.0	4.1	3.0
I	Padat Karya	45.4	23.5	11.8	4.4	3.5	2.3
Quintile II 1997							
II	Uniform	20.0	4.6	5.3	4.4	3.6	2.2
II	Sembako	25.0	6.1	7.1	5.7	4.1	2.0
II	Padat Karya	29.5	13.5	7.9	2.7	3.4	2.0
Quintile III 1997							
III	Uniform	20.0	3.7	4.1	5.0	4.2	3.1
III	Sembako	21.1	4.1	5.2	5.8	4.0	2.1
III	Padat Karya	13.6	4.9	2.4	2.6	2.6	1.1
Quintile IV 1997							
IV	Uniform	20.0	2.7	3.1	4.3	5.2	4.7
IV	Sembako	15.2	2.2	3.0	3.7	3.5	2.8
IV	Padat Karya	7.9	1.8	1.8	2.0	1.5	0.7
Quintile V 1997							
V	Uniform	20.0	1.9	2.5	2.9	4.5	8.2
V	Sembako	9.3	1.1	1.5	1.3	1.7	3.6
V	Padat Karya	3.5	1.2	0.4	0.7	0.2	1.0

Notes: Author's calculations based on appendix tables A.1-A.4 and B.1

V) Conclusions

The findings of this study point out that two of major "JPS' programs pursued a different method of targeting. We find strong evidence that one of the programs, a subsidized sale of rice, while it was targeted to the "permanently" poor was not related to the "shock" in income. This illustrates the trade-offs both from a policy and positive political economy point of view of different types of programs.

On the other hand, "padat karya" programs was targeted to both levels and shocks to expenditures. This pattern of targeting is of course just one piece of the puzzle, as the costs per dollar of benefits delivered to any recipient are much higher for an employment scheme.

References

Rahayu, Sri Kusumastuti *et al* (1998), *Results of a SMERU Rapid Field Appraisal Mission: Implementation of Special Market Operation (OPK) Program in Five Provinces*, SMERU Special Report, December, Social Monitoring & Early Response Unit, Jakarta.

Suryahadi, Asep and Sudarno Sumarto (1999), *Update on the Impact of the Indonesian Crisis on Consumption Expenditures and Poverty Incidence: Results from the December 1998 Round of 100 Village Survey*, SMERU Working Paper, August, Social Monitoring & Early Response Unit, Jakarta.

Suryahadi, Asep, Yusuf Suharso, and Sudarno Sumarto (1999), *Coverage and Targeting in the Indonesian Social Safety Net Programs: Evidence from 100 Village Survey*, SMERU Working Paper, August, Social Monitoring & Early Response Unit, Jakarta.

Appendix A

Table A.1: Households in "100 villages" data who received "Sembako" in the three months prior to December 1998, by quintile of per capita household expenditures in August 1998, May 1997, and transition matrix between 1997 and 1998.

			August 1998 Expenditure Quintiles				
			I	II	III	IV	V
		Totals 1998	52.7 1.0	47.9 0.9	42.3 0.8	33.1 0.6	20.7 0.4
		Totals 1997					
May 1997 Expenditure Quintiles	I (Poorest)	59.8 1.0	58.6 **1.00** 1.11 0.98	63.1 **1.08** 1.32 1.06	68.6 **1.17** 1.62 1.15	44.9 **0.77** 1.36 0.75	40.6 **0.69** 1.96 0.68
	II	45.2 0.8	50.50 **0.86** 0.96 1.12	52.70 **0.90** 1.10 1.17	42.60 **0.73** 1.01 0.94	35.90 **0.61** 1.08 0.79	28.70 **0.49** 1.39 0.63
	III	40.1 0.7	42.10 **0.72** 0.80 1.05	46.90 **0.80** 0.98 1.17	44.50 **0.76** 1.05 1.11	37.80 **0.65** 1.14 0.94	24.60 **0.42** 1.19 0.61
	IV	31.1 0.5	39.50 **0.67** 0.75 1.27	27.80 **0.47** 0.58 0.89	36.00 **0.61** 0.85 1.16	33.00 **0.56** 1.00 1.06	23.70 **0.40** 1.14 0.76
	V (Richest)	20.6 0.3	37.04 **0.63** 0.70 1.80	27.00 **0.46** 0.56 1.31	24.06 **0.41** 0.57 1.17	24.30 **0.41** 0.73 1.18	15.80 **0.27** 0.76 0.77

Notes:
Bold: Ratio of HHs participating in that cell that of QI 1998/QI 1997 (e.g. bottom rightmost cell 15.8/58.6=.27)
Italics: Ratio HHs participating in that cell to average for that quintile in 1998 (e.g. bottom rightmost cell 15.8/20.7=.76)
Plain text: Ratio of HHs participating in that cell to average for that quintile in 1997 (e.g. bottom rightmost cell 15.8/20.6=.77)

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2416	The Swiss Multi-Pillar Pension System: Triumph of Common Sense?	Monika Queisser Dimitri Vittas	August 2000	A. Yaptenco 31823
WPS2417	The Indirect Approach	David Ellerman	August 2000	B. Mekuria 82756
WPS2418	Polarization, Politics, and Property Rights: Links between Inequality and Growth	Philip Keefer Stephen Knack	August 2000	P. Sintim-Aboagye 37644
WPS2419	The Savings Collapse during the Transition in Eastern Europe	Cevdet Denizer Holger C. Wolf	August 2000	I. Partola 35759
WPS2420	Public versus Private Ownership: The Current State of the Debate	Mary Shirley Patrick Walsh	August 2000	Z. Kranzer 38526
WPS2421	Contractual Savings or Stock Market Development—Which Leads?	Mario Catalan Gregorio Impavido Alberto R. Musalem	August 2000	P. Braxton 32720
WPS2422	Private Provision of a Public Good: Social Capital and Solid Waste Management in Dhaka, Bangladesh	Sheoli Pargal Daniel Gilligan Mainul Huq	August 2000	S. Pargal 81951
WPS2423	Financial Structure and Economic Development: Firm, Industry, and Country Evidence	Thorsten Beck Aslı Demirgüç-Kunt Ross Levine Vojislav Maksimovic	August 2000	K. Labrie 31001
WPS2424	Global Transmission of Interest Rates: Monetary Independence and the Currency Regime	Jeffrey Frankel Sergio Schmukler Luis Servén	August 2000	E. Khine 37471
WPS2425	Are Returns to Investment Lower for the Poor? Human and Physical Capital Interactions in Rural Vietnam	Dominique van de Walle	August 2000	H. Sladovich 37698
WPS2426	Commodity Price Uncertainty in Developing Countries	Jan Dehn	August 2000	P. Varangis 33852
WPS2427	Public Officials and Their Institutional Environment: An Analytical Model for Assessing the Impact of Institutional Change on Public Sector Performance	Nick Manning Ranjana Mukherjee Omer Gokcekus	August 2000	C. Nolan 30030
WPS2428	The Role of Foreign Investors in Debt Market Development: Conceptual Frameworks and Policy Issues	Jeong Yeon Lee	August 2000	A. Yaptenco 38526

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2429	Corruption, Composition of Capital Flows, and Currency Crises	Shang-Jin Wei	August 2000	H. Sladovich 37698
WPS2430	Financial Structure and Bank Profitability	Asli Demirgüç-Kunt Harry Huizinga	August 2000	K. Labrie 31001
WPS2431	Inside the Crisis: An Empirical Analysis of Banking Systems in Distress	Asli Demirgüç-Kunt Enrica Detragiache Poonam Gupta	August 2000	K. Labrie 31001
WPS2432	Funding Growth in Bank-Based and Market-Based Financial Systems: Evidence from Firm-Level Data	Asli Demirgüç-Kunt Vojislav Maksimovic	August 2000	K. Labrie 31001
WPS2433	External Interventions and the Duration of Civil Wars	Ibrahim A. Elbadawi Nicholas Sambanis	September 2000	H. Sladovich 37698
WPS2434	Socioeconomic Inequalities in Child Malnutrition in the Developing World	Adam Wagstaff Naoko Watanabe	September 2000	A. Maranon 38009
WPS2435	The Evolution of Poverty during the Crisis in Indonesia, 1996–99	Asep Suryahadi Sudarno Sumarto Yusuf Suharso Lant Pritchett	September 2000	P. Sader 33902